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#14
Appeal Brief

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Sugiyama et al.	Docket No.:	30598.0004
Serial No.:	08/960,431	Art Unit:	3723
Filed:	October 29, 1997	Examiner:	Nguyen, G.
Title	FLATTENING METHOD AND FLATTENING APPARATUS OF A SEMICONDUCTOR DEVICE		

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TECHNOLOGY CENTER R3700

TO: Assistant Commissioner for Patents
Washington, D.C. 20231

**APPELLANTS' BRIEF
PURSUANT TO 37 C.F.R. § 1.192**

Dear Assistant Commissioner:

Appellants appeal the decision of the Examiner finally rejecting all of the claims pending in the present application, namely claims 1-21. A Notice of Appeal was filed by Appellants on June 20, 2001.

I. REAL PARTY IN INTEREST

SpeedFam Company, Ltd. is the real party in interest in the subject application, by virtue of an Assignment from inventors Sugiyama, et al. to SpeedFam Company, Ltd. (recorded on May 30, 1995 at Reel 7488, Frame 0045).

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II. RELATED APPEALS AND INTERFERENCES

No other appeals or interferences are currently known that will directly affect, be directly affected by, or have a bearing on the decision to be rendered by the Board of Patent Appeals and Interferences in the present appeal.

III. STATUS OF CLAIMS

Claims 1-21 are pending in the application.

The previous rejections of claims 1-21 under §103(a), as set forth in the Office Action of July 12, 1999, have been removed through arguments of Appellants, and thus no longer exist. However, claims 1-21 were finally rejected in the Office Action of December 20, 2001 under 35 U.S.C. §251 as being an improper recapture of claimed subject matter surrendered in the application for the patent upon which the present reissue is based. A copy of the pending claims, in their current amended form as entered, is provided in Appendix A of this brief.

IV. STATUS OF AMENDMENTS

Arguments in the Request for Reconsideration were filed after the Examiner's Final Office Action; however, no claims were amended in the Request for Reconsideration.

V. SUMMARY OF INVENTION

To remove various defects that exist with respect to prior art chemical-mechanical polishing methods, at least two features can be desired for smoothing or flattening of a semiconductor, including (1) an area smaller than one tip that is polished in a straight line parallel to a surface of a wafer base; and (2) an inter-layer insulating film that has a uniform thickness by removing an equal quantity, in respect of the density of wirings when the whole surface of the wafer is viewed. The present invention provides a polishing method and a polishing apparatus to address the above features.

A flattening method of a semiconductor device by the chemical-mechanical polishing process of the present invention includes the preparation of a synthetic resin polishing cloth in a circular form and a tool for forming a surface layer of the synthetic resin polishing cloth to a fluff thereon in a polishing process, with the tool having a diameter less than a radial length of the polishing cloth. In addition, this method includes the rotation of the polishing cloth along a central axis thereof and pressing the tool on the radial portion of the polishing cloth, with the tool being moved along the polishing cloth to form the fluff on the polishing cloth so that the polishing cloth can evenly and continuously polish the semiconductor device.

In addition, a flattening apparatus of a semiconductor device which can carry out the chemical-mechanical polishing process can include a flattening device having a circular polishing cloth for polishing the semiconductor device. The flattening device can be rotated in one direction on the central axis thereof. In addition, a device is included for forming a surface layer of the polishing cloth having fluff thereon with the forming device having an annular shape and a diameter less than a radial length of the polishing cloth. Finally, a tool arm can be connected to the forming device, with the tool arm being moved to form the fluff on the polishing cloth while polishing is being made by the polishing cloth.

VI. ISSUES

The issues presented on appeal are:

1. Whether mere claim amendments, without argument, made during the prosecution of the original patent application are sufficient to support the application of the Doctrine of Recapture in a Reissue application.

2. Whether Appellants' mere recitation of the claims as amended in the Amendment to the Office Action of May 17, 1996, constitute sufficient evidence of an admission that the scope of those claims was not, in fact, patentable.

VII. GROUPING OF CLAIMS

1. With respect to issue No. 1, claims 1-13 stand together.
2. With respect to issue No. 1, claims 14-21 stand together.
3. With respect to issue No. 2, claims 1-13 stand together.
4. With respect to issue No. 2, claims 14-21 stand together.

VIII. ARGUMENT

A. Summary of Final Office Action

Claims 1-21 stand rejected under 35 U.S.C. §251 as being an improper recapture of claimed subject matter surrendered in the application for the patent upon which the present reissue is based. In this regard, the Examiner contends that the claims sought to be reissued include a broadening aspect, and that the prosecution history of the original patent shows that the broadening aspect was previously surrendered. In particular, the Examiner contends that limitations sought to be deleted in the reissue claims, namely, "an annular shape with," "radial direction of," and "and perpendicular to the radial direction," provide a broadening aspect to the reissue claims and that these limitations were clearly argued in the amendment filed on May 17, 1996 to overcome the rejections based on Bombardier, et al. '021 in view of Japan reference '870, Beasley '963, Ruark, et al. '681, and Holzhauer as set forth in the Office Action of February 26, 1996. Further, the Examiner contends that "the failure to appreciate the more narrow scope of the claims" in the patent was not an error within the meaning of 35 U.S.C. §251

and that the broader scope surrendered in the application for patent cannot be recaptured in the present reissue application. Appellants respectfully disagree.

The present rejections in the Final Office Action appear to be a mere restatement of the previous rejections set forth in the Office Action dated June 6, 2000. In each instance, the basis of the Examiner's rejections has been very brief, without detailed explanation or reasoning. For example, the Examiner again states that the limitation "an annular shape with" is sought to be deleted in the present claims; however, Appellants clearly amended claim 1 to re-include the limitation "an annular shape with" within the scope of claim 1 in its Amendment of October 6, 2000. Further, appellants are puzzled by the Examiner's repeated refusal of claims 14-21 under the Doctrine of Recapture, particularly since these claims were never amended in the present reissue application.

Appellants disagree with the Examiner's contention that the failure to appreciate the more narrow scope of the claims in the patent was not an error within the meaning of 35 U.S.C. §251. As discussed and understood with Supervisory Examiner Hale, the failure, for example, by Appellants' original patent counsel, to appreciate the scope of the invention during the prosecution of the original application is clearly one of the categories of error under §251 that are correctable by reissue. In re Clement, 131 F.3d 1464, 1468 (Fed. Cir. 1997); Mentor Corp. V. Coloplast, Inc., 998 F.2d 1565, 1575 (Fed. Cir. 1991); In re Wilder, 736 F.2d 1516, 1519 (Fed. Cir. 1984).

Accordingly, in that the two amendments to the present application made to independent claims 1, 6 and 11, namely, the deletion of the limitations "radial direction of," and "and perpendicular to the radial direction," are appropriate for removal during reissue under §251, the only remaining two issues to be resolved are whether mere amendments, without argument, are

sufficient to support the application of the Doctrine of Recapture; and whether Appellants' mere recitation or characterization of the claims in the Response to an Office Action of May 17, 1996, constitutes an admission that the scope of that claim was not, in fact, patentable.

On March 5, 2001, Appellant filed a Request for Reconsideration to the final Office Action dated December 20, 2000. Appellant received an Advisory Action mailed March 21, 2001, which simply reiterate the Final Office Action, without detailed support.¹ Appellant respectfully disagrees and thus files this Appeal and arguments on behalf of the presently pending claims.

B. Mere amendments, without argument, are insufficient to support the application of the Doctrine of Recapture.

Supervisory Examiner Hale has inquired as to whether the mere fact that amendments were made, even without argument, are sufficient in and of themselves to support the Doctrine of Recapture. Appellants respectfully submit that mere amendments are not sufficient.

In determining whether claim amendments are permissible under §251, the recapture rule does not apply in the absence of evidence that the amendment was an admission that the scope of the claim was not patentable. Clement, 131 F.3d at 1468. In other words, the mere inclusion of an amendment to the claims is not sufficient in the absence of evidence that the scope of the claims were not patentable. Seattle Box Company v. Industrial Crating and Packing, Inc., 731 F.2d at 818, 826 (Fed. Cir. 1984).

In Seattle, originally filed claim 1 of the application stated that a double-concave spacer block had a "height substantially equal to the thickness of the tier of pipe lengths." During prosecution of the original application, applicant's attorney made only one amendment to the claims, narrowing claim 1 so as to specify that the spacer block had a height only "greater than"

¹ The Advisory Action of March 21, 2001 again improperly applies the Doctrine of Recapture to

the thickness of the tier of pipe lengths. Soon after the attorney made this narrowing amendment, the patent examiner allowed each of applicant's claims. Thereafter, applicant's counsel filed a reissue application which averred that the limitation on the height of the spacer block in claim 1 was unnecessary and "arose through inadvertence by counsel." In the reissue application, which was granted by the USPTO, Appellants' counsel amended claim 1 to specify a spacer block of "a height substantially equal to or greater than the thickness of the tier of pipe length." Seattle at 821, 822.

In an infringement suit brought against Industrial Crating and Packing, Inc. by Seattle Box, Defendant Industrial argued to the Federal Circuit that the USPTO incorrectly allowed the broadened reissue claims with a scope equivalent to the scope of the preamended claims in the original patent application. However, the Federal Circuit held that the Doctrine of Recapture did not apply because there was no evidence that the appellant's amendment of its originally filed claims was in any sense an admission that the scope of that claim was not, in fact, patentable. Id. at 826. In other words, the mere fact amendments were made to the originally filed claims was not sufficient to invoke the Doctrine of Recapture. (See also In re Petrow, 402 F.2d 485, 488, (C.C.P.A. 1968) in which the Court reversed affirmation of rejection of appellant's claims in the reissue patent application because there were insufficient facts in the record to hold that earlier cancellation of a claim was an admission that the rejected claim was not patentable at the time the earlier claim was cancelled.) Accordingly, in the absence of sufficient evidence, for example specific arguments in the prosecution history, that demonstrated an admission that the scope of the claims were not, in fact, patentable, mere amendments are insufficient to support the application of Doctrine of Recapture.

claims 14-21 which were never amended in the first instance of the current reissue application.

C. Appellants' mere characterization of the invention is not sufficient evidence that the limitations were specifically argued.

The Examiner has questioned whether appellants' discussion of particular claim limitations in the May 17, 1996, Amendment to the Office Action are sufficient to invoke the Doctrine of Recapture. As discussed below, Appellants' discussion of the two limitations in question merely comprised a characterization of the invention and did not constitute arguments in support of patentability.

In the originally issued patent, the limitations "an annular shape with," "radial direction of," and "and perpendicular to the radial direction" were all unnecessary to overcome the prior art of record.² The reissue application sought to remove each of these unnecessary limitations from independent claims 1, 6 and 11 because the Appellants failed to appreciate the full scope of the invention during prosecution of the original patent.

In examining the prosecution history of the instant application for evidence of an admission by Appellants that subject matter has been surrendered, it is clear that the unnecessary limitations "radial direction of" and "and perpendicular to the radial direction" were not specifically argued as "necessary" or "critical" to patentability. At best, these two limitations were merely recited as being within the scope of the claims; Appellants did not specifically argue that these two limitations distinguished over cited references or were otherwise necessary for patentability.

MPEP Section 1412.02, in "Example (A)" under the section "Criteria For Determining That Subject Matter Has Been Surrendered", states:

² In previous discussion with the Examiner, Applicants' counsel confirmed that the arguments with respect to the presently pending claims set forth in the Amendment and Responses of December 13, 1999 and March 14, 2000 were successful in overcoming all §102 and §103 arguments; hence, all that remains at issue is the §251 rejection.

“[t]he argument that the claim limitation defined over the rejection must have been specific as to the limitation; rather than a general statement regarding the claims as a whole. In other words, a general “boiler plate” sentence will not be sufficient to establish recapture.” (Emphasis added).

Moreover, as noted in MPEP Section 1412.02, such a “general argument will not, by itself, be sufficient to establish surrender and recapture.” Likewise, Appellants mere recitation of the limitations, rather than specific argument, is not sufficient for recapture to apply.

Instances where this rule has been applied in determining whether subject matter has been surrendered through sufficient argument include Hester Industries, 142 F.3d 1472, 1481 (Fed. Cir. 1998); Clement, 131 F.3d at 1468; Mentor Corp v. Coloplast, Inc., 998 F.2d 992, 994, 27 USPQ2d 1521, 1524 (Fed. Cir. 1993); and Ball Corp v. United States, 729 F.2d 1429, 1436, 221 USPQ 2889, 294-95 (Fed. Cir. 1984), various of which have also been cited by the Examiner.

In Hester, the patent applicant repeatedly and specifically argued that two limitations distinguished the original claims from the prior art of record. These limitations were also the primary bases for distinguishing the broadest independent claim from the prior art, with the patent appellant specifically arguing that each of two limitations were “critical” and “very material” with respect to patentability.³ Hester, 142 F.3d at 1482.

In Clement, the patent applicant added a specific limitation to the claims at issue to the effect that the claimed process was carried out “at room temperature” and applies “specific mechanical energy lower than 50 kilowatt hours per ton to form a pumpable slurry...” The patent applicant specifically argued that the limitation overcame prior art references despite the Examiner’s contention to the contrary. In addition, the applicant added the limitations “strong

³ For example, with respect to one limitation, the patent applicant specifically asserted in 27 instances in six papers that one limitation distinguished the claimed invention from the prior art, and with

alkaline conditions” in an effort to overcome the prior art reference. Furthermore, the applicant clearly admitted that it added these “very specific process perimeters... in order to distinguish over the prior art.” Clement, 131 F.3d at 1471.

In Mentor, the applicant amended its claims to include the limitation that “as the sheath member is unrolled the adhesive on the outer surface is transferred to the portion of the inner surface in engagement with the outer surface...” In addition the applicant specifically argued that “none of the references relied upon actually showed the transfer of adhesive from the outer surface to the inner surface as the sheath is rolled up and then unrolled.” Mentor, 998 F.2d at 995.

In each of these cases, the patent applicant specifically argued that a particular limitation was necessary to overcome the prior art. Further, in each case, the Court looked at the level of detail of the arguments, i.e., the Court searched for specific arguments with respect to the claim limitation, rather than mere recitations, characterizations or “boiler plate.”

With respect to the amendment in question of May 17, 1996, Appellants concede that the limitation “an annular shape” was specifically argued with respect to the cited references. For example, with respect to the Beasley reference, the arguments in the remarks of the May 17, 1996 Amendment provided that “[i]n the invention, the tool has an annular shape and is curved in the radial direction. Beasley does not have the annular shape with a curvature in the radial direction.” (Page 7, fourth paragraph). Moreover, in the remarks of the May 17, 1996 Amendment, Appellants argued that “the cleaning member 7 in Japan ‘870 has a rod shape, not the annular shape as in the invention...” (Page 8, fourth paragraph). These are examples of specific argument that rise to the level needed to invoke the Doctrine of Recapture, as

respect to the other limitation, the patent applicant asserted in “no less than” 15 instances that the limitation was necessary. Hester at 1482.

demonstrated in Hester, Clement, and Mentor.

On the other hand, the two limitations at issue, namely, “radial direction of,” and “and perpendicular to the radial direction” are not specifically addressed in the arguments. Instead, these two unnecessary limitations were mentioned passively, i.e., merely recited, within the scope of the claims.⁴ While several such general recitations or characterizations are included within the Amendment, at no point did Appellants specifically argue that the limitations are critical, very material, or necessary to patentability.⁵

Accordingly, after carefully reviewing the file history, there is no evidence in the record that the limitations “radial direction of” and “and perpendicular to the radial direction” were specifically argued in the current application; rather, Appellants’ recitation of these two limitations in Amendment filed on May 17, 1996, constitute a mere recitation or characterization of the invention. As a result, the application of the Doctrine of Recapture to these limitations is improper.

D. Alternatively, Appellant agrees to amend the claims if the Doctrine of Recapture is applied to the two limitations at issue.

While Appellant believes that the pending claims fully comply with 35 U.S.C. § 112, and that the recapture doctrine as articulated by the Court of Appeals for the Federal Circuit does not

⁴ For example, “[i]n the invention, the processing tool for the polishing cloth has an annular shape with a diameter less than a radial length of the polishing cloth. When the polishing is made, the polishing cloth is rotated, and the tool is urged on the radial portion of the polishing cloth and perpendicular to the radial direction to form the fluff on the polishing cloth. When the semiconductor device is polished while the polishing cloth is being recreated, the semiconductor device is disposed adjacent to the processing tool and is urged onto the polishing cloth. Thus, the polishing cloth can evenly and continuously polish the semiconductor device.” (Amendment of May 17, 1996, page 6, first paragraph).

⁵ In Seattle, with respect to the lone claim amendment discussed *supra*, the applicants provided specific arguments as to other limitations in claim 1, but did not specifically argue the lone claim amendment as being necessary to patentability. Recognizing that specific arguments were not made as to the lone claim amendment, the Federal Circuit held that the Doctrine of Recapture did not apply because there was no evidence that the applicant’s amendment of its originally filed claims was in any sense an admission that the scope of that claim was not, in fact, patentable. Seattle 731 F.2d at 826.

apply, in the event this Board disagrees with the arguments of Appellant, Appellant respectfully submits new proposed claim amendments for consideration, as set forth in Appendix B.

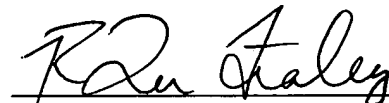
In these alternative, amended claims, the two amendments at issue in the present reissue application, namely, the limitations "radial direction of," and "perpendicular to the radial direction," have been reinserted back into independent claims 1, 6, and 11. In addition, Appellant has included the limitation "at least one of," into the above said independent claims 1, 6 and 11. Accordingly, in the event this Board disagrees with the arguments of Appellant, Appellant will agree to amend the claims in a separate amendment filed in accordance with 37 CFR 1.116, if such an amendment will result in issuance of those amended claims.

IX. CONCLUSION

In view of the foregoing, Appellants respectfully submit that all of the pending claims fully comply with 35 U.S.C. §112, that the application of the recapture doctrine as articulated by the Court of Appeals for the Federal Circuit is improper, and that the pending claims are allowable over the prior art of record. Accordingly, Appellant believes that claims 1-21 are allowable and respectfully request that the associated rejections of claims 1-21 under 35 U.S.C. §251 be removed.

Respectfully submitted,

Dated: August 17, 2001

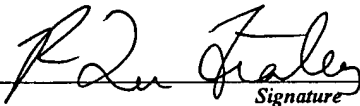
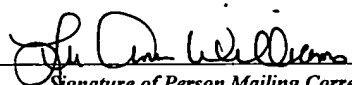
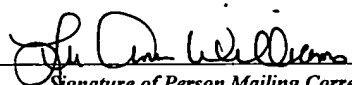
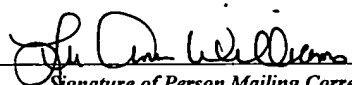


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A# 3723

TRANSMITTAL OF APPEAL BRIEF (Large Entity)			Docket No. 30598.0004				
In Re Application Of: Sugiyama et al.							
Serial No. 08/960,431	Filing Date October 29, 1997	Examiner Nguyen, G.	Group Art Unit 3723				
Invention: FLATTENING METHOD AND FLATTENING APPARATUS OF A SEMICONDUCTOR DEVICE							
			08-20-2001 U.S. Patent & TMO/TM Mail Rcpt Dt. #25				
<p align="center"><u>TO THE ASSISTANT COMMISSIONER FOR PATENTS:</u></p> <p>Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on June 20, 2001</p> <p>The fee for filing this Appeal Brief is: \$310.00</p> <p><input checked="" type="checkbox"/> A check in the amount of the fee is enclosed.</p> <p><input type="checkbox"/> The Commissioner has already been authorized to charge fees in this application to a Deposit Account. A duplicate copy of this sheet is enclosed.</p> <p><input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 19-2814 A duplicate copy of this sheet is enclosed.</p> <p align="right">RECEIVED SEP 07 2001 TECHNOLOGY CENTER R3700</p> <p> Signature</p> <p>Dated: August 17, 2001</p> <p>R. Lee Fraley, Reg. No. 42,550 Snell & Wilmer L.L.P. One Arizona Center 400 E. Van Buren Phoenix, Arizona 85004-2202 (602) 382-6250</p> <table border="1"><tr><td>I certify that this document and fee is being deposited on August 17, 2001 with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.</td></tr><tr><td> Signature of Person Mailing Correspondence</td></tr><tr><td align="center">Lu Ann Williams</td></tr><tr><td align="center">Typed or Printed Name of Person Mailing Correspondence</td></tr></table> <p>cc:</p>				I certify that this document and fee is being deposited on August 17, 2001 with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.	 Signature of Person Mailing Correspondence	Lu Ann Williams	Typed or Printed Name of Person Mailing Correspondence
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